

FIGURE 1.

GCGCGCCGGC CTGAGAGCCC TGTGGACAAC CTCGTCATTG TCAGGCACAG
 AGCGGTAGAC CCTGCTTCTC TAAGTGGGCA GCGGACAGCG GCACGCACAT
 TTCACCTGTC CCGCAGACAA CAGCACCATC TGCTTGGGAG AACCTCTCC
 CTTCTCTGAG AAAGAAAGAT GTCGAATGGG TATTCCACAG ACGAGAATTT
 CCGCTATCTC ATCTCGTGCT TCAGGGCCAG GGTGAAAATG TACATCCAGG
 TGGAGCCTGT GCTGGACTAC CTGACCTTTC TGCCTGCAGA GGTGAAGGAG
 CAGATTCAGA GGACAGTCGC CACCTCCGGG AACATGCAGG CAGTTGAACT
 GCTGCTGAGC ACCTTGGAGA AGGGAGTCTG GCACCTTGGT TGGACTCGGG
 AATTCGTGGA GGCCCTCCGG AGAACCGGCA GCCCTCTGGC CGCCCGCTAC
 ATGAACCCTG AGCTCACGGA CTTGCCCTCT CCATCGTTTG AGAACGCTCA
 TGATGAATAT CTCCAAC TGC TGAACCTCCT TCAGCCCACT CTGGTGGACA
 AGCTTCTAGT TAGAGACGTC TTGGATAAGT GCATGGAGGA GGAAGTGTG
 ACAATTGAAG ACAGAAACCG GATTGCTGCT GCAGAAAACA ATGGAAATGA
 ATCAGGTGTA AGAGAGCTAC TAAAAAGGAT TGTGCAGAAA GAAAGTGGT
 TCTCTGCATT TCTGAATGTT CTTCTGCAAA CAGGAAACAA TGAAGTGTG
 CAAGAGTTAA CAGGCTCTGA TTGCTCAGAA AGCAATGCAG AGATTGAGAA
 TTTATCACAA GTTGATGGTC CTCAAGTGGA AGAGCAACTT CTTTCAACCA
 CAGTTCAGCC AAATCTGGAG AAGGAGGTCT GGGGCATGGA GAATAACTCA
 TCAGAATCAT CTTTTGCAGA TTCTTCTGTA GTTTCAGAAT CAGACACAAG
 TTTGGCAGAA GGAAGTGTCA GCTGCTTAGA TGAAAGTCTT GGACATAACA
 GCAACATGGG CAGTGATTCA GGCACCATGG GAAGTGATTC AGATGAAGAG
 AATGTGGCAG CAAGAGCATC CCCGGAGCCA GAACTCCAGC TCAGGCCTTA
 CCAAATGGAA GTTGCCCAGC CAGCCTTGGA AGGGAAGAAT ATCATCATCT
 GCCTCCCTAC AGGGAGTGGA AAAACCAGAG TGGCTGTTTA CATTGCCAAG
 GATCACTTAG ACAAGAAGAA AAAAGCATCT GAGCCTGGAA AAGTTATAGT
 TCTTGTC AAT AAGGTACTGC TAGTTGAACA GCTCTTCCGC AAGGAGTTCC
 AACCATTTTT GAAGAAATGG TATCGTGTTA TTGGATTAAG TGGTGATACC
 CAACTGAAAA TATCATTTCC AGAAGTTGTC AAGTCCTGTG ATATTATTAT
 CAGTACAGCT CAAATCCTTG AAAACTCCCT CTTAAACTTG GAAAATGGAG
 AAGATGCTGG TGTTC AATTG TCAGACTTTT CCCTCATTAT CATTGATGAA
 TGTCATCACA CCAACAAAGA AGCAGTGTAT AATAACATCA TGAGGCATTA
 TTTGATGCAG AAGTTGAAAA ACAATAGACT CAAGAAAGAA AACAAACCAG
 TGATTCCCCT TCCTCAGATA CTGGGACTAA CAGCTTCACC TGGTGTGGA
 GGGGCCACGA AGCAAGCCAA AGCTGAAGAA CACATTTTAA AACTATGTGC

CAATCTTGAT GCATTTACTA TTAAAACTGT TAAAGAAAAC CTTGATCAAC
 TGAAAAACCA AATACAGGAG CCATGCAAGA AGTTTGCCAT TGCAGATGCA
 ACCAGAGAAG ATCCATTTAA AGAGAAACTT CTAGAAATAA TGACAAGGAT
 TCAAACCTTAT TGTCAAATGA GTCCAATGTC AGATTTTGGA ACTCAACCCT
 ATGAACAATG GGCCATTCAA ATGGAAAAAA AAGCTGCAAA AAAAGGAAAT
 CGCAAAGAAC GTGTTTGTGC AGAACATTTG AGGAAGTACA ATGAGGCCCT
 ACAAATTAAT GACACAATTC GAATGATAGA TGCGTATACT CATCTTGAAA
 CTTTCTATAA TGAAGAGAAA GATAAGAAGT TTGCAGTCAT AGAAGATGAT
 AGTGATGAGG GTGGTGATGA TGAGTATTGT GATGGTGATG AAGATGAGGA
 TGATTTAAAG AAACCTTTGA AACTGGATGA AACAGATAGA TTTCTCATGA
 CTTTATTTTT TGAAAACAAT AAAATGTTGA AAAGGCTGGC TGAAAACCCA
 GAATATGAAA ATGAAAAGCT GACCAAATTA AGAAATACCA TAATGGAGCA
 ATATACTAGG ACTGAGGAAT CAGCACGAGG AATAATCTTT ACAAAAACAC
 GACAGAGTGC ATATGCGCTT TCCCAGTGGA TTAAGTAAAA TGAAAAATTT
 GCTGAAGTAG GAGTCAAAGC CCACCATCTG ATTGGAGCTG GACACAGCAG
 TGAGTTCAAA CCCATGACAC AGAATGAACA AAAAGAAGTC ATTAGTAAAT
 TTCGCACTGG AAAAATCAAT CTGCTTATCG CTACCACAGT GGCAGAAGAA
 GGTCTGGATA TTAAAGAATG TAACATTGTT ATCCGTTATG GTCTCGTCAC
 CAATGAAATA GCCATGGTCC AGGCCCCGTG TCGAGCCAGA GCTGATGAGA
 GCACCTACGT CCTGGTTGCT CACAGTGGTT CAGGAGTTAT CGAACATGAG
 ACAGTTAATG ATTTCCGAGA GAAGATGATG TATAAAGCTA TACATTGTGT
 TCAAAATATG AAACCAGAGG AGTATGCTCA TAAGATTTTG GAATTACAGA
 TGCAAAGTAT AATGGAAAAG AAAATGAAAA CCAAGAGAAA TATTGCCAAG
 CATTACAAGA ATAACCCATC ACTAATAACT TTCCTTTGCA AAAACTGCAG
 TGTGCTAGCC TGTCTGTTGG AAGATATCCA TGTAATTGAG AAAATGCATC
 ACGTCAATAT GACCCCAGAA TTCAAGGAAC TTTACATTGT AAGAGAAAAC
 AAAGCACTGC AAAAGAAGTG TGCCGACTAT CAAATAAATG GTGAAATCAT
 CTGCAAATGT GGCCAGGCTT GGGGAACAAT GATGGTGCAC AAAGGCTTAG
 ATTTGCCTTG TCTCAAAATA AGGAATTTTG TAGTGGTTTT CAAAAATAAT
 TCAACAAAGA AACAAATACAA AAAGTGGGTA GAATTACCTA TCACATTTC
 CAATCTTGAC TATTCAGAAT GCTGTTTATT TAGTGATGAG GATTAGCACT
 TGATTGAAGA TTCTTTTAAA ATACTATCAG TTAAACATTT AATATGATTA
 TGATTAATGT ATTCATTATG CTACAGAACT GACATAAGAA TCAATAAAAT
 GATTGTTTTA CTCTG

FIGURE 2.

MSNGYSTDEN FRYLISCFRA RVKMYIQVEP VLDYLTFLPA EVKEQIQRTV
 ATSGNMQAVE LLLSTLEKGV WHLGWTREFV EALRRTGSPL AARYMNPFLT
 DLPSPSFENA HDEYLQLLNL LQPTLVDKLL VRDVLDKCME EELLTIEDRN
 RIAAAENNGN ESGVRELLKR IVQKENWFSA FLNVLRQTGN NELVQELTGS
 DCSESNAEIE NLSQVDGPQV EEQLLSTTVQ PNLEKEVWGM ENNSSESSFA
 DSSVVSSEDT SLAEGSVSCL DESLGHNSNM GSDSGTMGSD SDEENVAARA
 SPEPELQLRP YQMEVAQPAL EGKNIIICLP TGSGKTRVAV YIAKDHLDDK
 KKASEPGKVI VLVNKVLLVE QLFRKEFQPF LKKWYRVIGL SGDTQLKISF
 PEVVKSCDII ISTAQILENS LLNLENGEDA GVQLSDFSLI IIDECHHTNK
 EAVYNNIMRH YLMQKLKNNR LKKENKPVIP LPQILGLTAS PGVGGATKQA
 KAEHILKLC ANLDAFTIKT VKENLDQLKN QIQEPCKKFA IADATREDPF
 KEKLLEIMTR IQTYCQMSPM SDFGTQPYEQ WAIQMEKKA KKNRKRVC
 AEHLRKYNEA LQINDTIRMI DAYTHLET FY NEEKDKKFAV IEDDSDEGGD
 DEYCDGDEDE DDLKKPLKLD ETDRFLMTLF FENNKMLKRL AENPEYENEK
 LTKLRNTIME QYTRTEESAR GIIFTKTRQS AYALSQWITE NEKFAEVGVK
 AHHLIGAGHS SEFKPMTQNE QKEVISKFRT GKINLLIATT VAEGLDIKE
 CNIVIRYGLV TNEIAMVQAR GRARADESTY VLVAHSGSGV IEHETVNDFR
 EKMMYKAIHC VQNMKPEEYA HKILELQMQS IMEKKMKTKR NIAKHYKNNP
 SLITFLCKNC SVLACSGEDI HVIEKMHHVN MTPEFKELYI VRENKALQKK
 CADYQINGEI ICKCGQAWGT MMVHKGLDLP CLKIRNFVVV FKNNSTKKQY
 KKWVELPITF PNLDYSECCL FSDDED•

FIGURE 3

gcacattttg	cctacaaag	accttattg	taaggcaga	cctgctggg
aaaacaaaat	tccgccgga	gagctttgt	gagcgttgg	cttggtgtc
agagagaatt	gctttcctt	tctgtttcc	gcggtgtcc	taaccaaag
gcctcctctc	tcacccgcc	cgaccaaaa	gtggcgtct	cctgaggaa
actccctccc	gccaggcag	ttacgttta	aaagtcctg	gaagagaat
cgaaacagaa	ccaaagtca	gcaaactct	taagaactg	ctgacagaa
agctggactc	aagctccta	ccgagtgtg	agcaggatc	ccccggtcc
gggaccccag	cgcacaccg	agagtccaa	gtgccgcgc	tgccggccg
cacctgcctg	cgcggtccc	cgcgccgcc	cgctgccca	ctgcccgcc
tgcccacctg	ccaggtgcg	gtgcagccc	gcgcgccgg	ctgagagcc
ctgtggacaa	ctcgtcatt	tcaggcaca	agcggtaga	cctgcttct
ntaagtgggc	gcggacagc	gcacgcaca	ttcacctgt	ccgcagaca
ctgcttggga	aacctctc	cttctctga	aaagaaaga	gtcgaatgg
gtattccaca	acgagaatt	ccgctatct	atctcgtgc	tcagggcca
gggtgaaaat	tacatccag	tggagcctg	gctggacta	ctgaccttt
ctgcctgcag	ggtgaagga	cagattcag	ggacagtcg	cacctccgg
gaacatgcag	cagttgaac	gctgctgag	accttgga	agggagtct
ggcaccttgg	tggactcgg	aattcgtgg	ggccctccg	agaaccggc
agccctctgg	cgcccgcta	atgaaccct	agctcacgg	cttgccttc
tccatcgttt	agaacgctc	tgatgaata	ctccaactg	tgaacctcc
ttcagcccac	ctggtggac	agctt		

FIGURE 4

MDA-5
Q9HAM6
RHIV-1
RIG-1
P34529
Q98P32
Q09884

SEPTELQRPYQMEVAQPALEGKNIICLPTGSGKTRVAVYIAKDH-LDKKKA---SEP 356
-----MELRSYQWEVIMPALEGKNIICLPTGAGKTRAAAYVAKRH-LET-----VDG 47
HTYSPLKPRKYQLELALPAQNGKNTIICAPTGGKTFVSLICEHH-LKKFFR---GRK 288
NLYSPFKPRNYQLELALPAQNGKNTIICAPTGGKTFVSLICEHH-LKKFFQ---GQK 290
ADLQCFMFRDYQVELLDKATK-KNTIVQLGTGSGKTFIIVLLKEYGVQLFAPL---DQG 61
EKVVEQARRYQLDVLEQAKA-KNTIAFLETGAGKTLIAILLIKSVHKDLMSQ-----NR 295
SFLLPOLLRRYQDDVYNIASK-QNTLLVMRTGAGKTLIAVLLIKQKLEEQILIQESNLEH 63

* * * * *

TGxGKTxxxL(I)

MDA-5
Q9HAM6
RHIV-1
RIG-1
P34529
Q98P32
Q09884

GK-VIVLVNKLVEQLFR--KEFQPFLLKKWYRVIGLSGDTQLKISFFPEVVKSCDIIIST 413
AK-VVVLVNRVHLVTQHG---EPRRMLDGRWTVTTLSDMGFRAGFGHLARCHDILLCT 103
GK-VVFFAIQLPVEYQKS---VFSKHFERLGYKVGISGATSDTVCEQIVENSIIILT 345
GK-VVFFANQIPVEYQKS---VFSKYFERHGYRVTVGISGATAENVPEQIVENNDIIILT 347
GKRAPPVVEKVNLEQQAIHIEVHTSFVKVQVHGQTSGLWDSKEQCDQFMKRHHVVIT 121
KMLSVFLVPLVPLVYQAEVIRNQTCTFQVGHYCGEMGQDFWDSR-KWQREFESQVLMVT 354
KKISVFLVNKVPVLFQQAERYISQLPAKVGMYGELS---IEMSEQLLTNIILKYNVIVIT 121

* * * * *

T(Ic)

MDA-5
Q9HAM6
RHIV-1
RIG-1
P34529
Q98P32
Q09884

AQILENSLLNLENGEDAGVQLSDFSLIIDECHHTN-KEAVYNNIMRHYLMQKLNKWLK 472
AELLQMALTSPE---EEHVELTVFSLIVVDECHHTN-KDTVYNVIMSQYLELKLQR--- 156
PQILVNCLTNGT-----IPSLSVFTLMIFDECHHTN-KQHPYNVIMFSLDRKLGG--- 396
PQILVNKLKGT-----IPSLSIFTLMIFDECHHTN-KQHPYNVIMFSLDRKLGG--- 398
AQCLLDLIRHAY-----LKIEDMCVLIFDECHHALGSHPYRSIMVDYKLLKKDK--- 171
AQIILNLIHRSI-----IRMETDILLDECHHAV-KKHPYSLVSEFYHTTPKDK--- 404
ADLPYLFARGE-----LSINDLNLIFDECHHAI-GNDAYARIMNDPYHRAKAVLS--- 172

* * * * *

DECH(II) iii

MDA-5
Q9HAM6
RHIV-1
RIG-1
P34529
Q98P32
Q09884

KENKVPILPQILGLTASPG-VGGATKQAKAEHILKCANLDAFTIKTVKENLDQLKNQ 531
-----AQPLPQVIGLTASPG-TGGASKLDGAINHVLQCANLDTWCIMSPONCCPQLQEH 210
-----SDSLPQVIGLTASVG-VGDAKNKAEATEYICKLCAASLDTSVIATVRDNLEEEV 450
-----SGPLPQVIGLTASVG-VGDAKNDEALDYICKLCAASLDASVIATVKHNLLEEQV 452
-----PVPRVLGLTASL---IKAKVAPEKLEMLKLESAMDS---VIETASDLVSLSKY 220
-----RPAIFGHTASPVNLKGVSSQVDAIKIRNLETKLOS---TVCTIKDRKELEKH 454
-----KKHFTLPRIFGHTASPF---TGKGNLYHRLYQWEQLFDSKAHVVSSEN---ELADY 222

* * * * *

SAT(III) iv v

MDA-5
Q9HAM6
RHIV-1
RIG-1
P34529
Q98P32
Q09884

IQEPCKKFAIADATREDP-FKEKLLIEMTRIQTTCQ-----MSPMS- 571
SQPCKQYNLCHRRSQDP-FGDLKLLMDQIHDHLE-----MPELSR 251
VYKPKQFFRKVELRTDR-FKCIISQLMMEIESLAKSIFEELGTITL---GGLFQIQNS 505
VYKPKQFFRKVESRISDK-FKYIIAQLMRDTESLAKRICKDLENLS-----QIQNR 502
GAKPYEVVVIICKDFEIGC-LGIPNFDTVIEIFDETVAFVN-----TTTEFEP 266
VMPSEIVVEYDKAATMWSLHETIKOMIAAVEEAAQASGRKSKWQFMGARDAGAKDELQ 514
FCLPEESVVMYSNKLVP---PDSIIKKCEETLQG-----CKLISR 261

* * * * *

vi

MDA-5
Q9HAM6
RHIV-1
RIG-1
P34529
Q98P32
Q09884

ENKMLKRLAENPEYENEKLTKLRTIMEQYTR-----TEESARGIIFTKTROSAYALS 735
DRKNELAHLATHG-PENPKLEMLEKILQROFS-----SSNSPRGIIFTKTROSASALL 384
EKLQELISISIDPSNENPKLRDLCLFILQEYHL-----NPET-RTILFVKTRALVDALK 647
EKLQELISVSRDPSNENPKLRDLCLFILQEYHL-----NPET-ITILFVKTRALVDALK 644
KKISIEALAPYVPRVIRLFEILETFNPEFQKERMKLEKAHLSAIFVDQRYIAYSIL 401
EHVDEVIGAAVADGKVTFKVQSLIKLLKYQHT-----ADFRAIVFVERVVAALVLP 681
YSDNGPRIPVFDSTDVTDKVKLLELLKATYRK-----SDSVRTVIFVERKATAFTLS 378

* * * * *

vii

MDA-5
Q9HAM6
RHIV-1
RIG-1
P34529
Q98P32
Q09884

QWITENEKFAE--VGKKAHHLIGAGHSSEFKPMTQ---NEQKEVISKFRGT-KINLLIAT 789
LWLQQOQGLQT---VDIRAQLLIGAGNSSQSTHMTQ---RDQKEVIQKQDQ-TLNLIVAT 438
KNIKENPKLS---FLKPSILTGRGKTNTONIGMTL---PAQKCVLDTFRDKNKILITT 700
NWIRGNPKLS---ELKPGILTGRGKTNTONTGMTL---PAQKCILDAFKASGDENILIAT 697
LMMRIKSWEPKFKFVNPDYVVGASGRNLASSDQGLHKKRQTEVLRRFRHN-EINCLIAT 460
KVFAPLPSLS---FIRCASMIHNNNSQEMKSSQM-----QDTISKFRDG-BVTLLVAT 730
LFMKTLLNLPN---IRAHSFIGHGSPDQGEFSMT---FRQKDTLHKFKTG-KYNVLIAT 430

* * * * *

viii ix T(V)

MDA-5
Q9HAM6
RHIV-1
RIG-1
P34529
Q98P32
Q09884

TVAEGLDIKECNIVIRYGLVTNEIAMVQARGRAREDESTYVLVAHSG----- 837
SVAEGLDIPHCNVVRYGLVTNEISMVQARGRAWADQSVYAFVATEG----- 486
SVADEGIDIAQCNLVIIETVGVYXMIQTHGRARGSRKFLLTAN----- 747
SVADEGIDIAQCNLVIIETVGVYXMIQTHGRARGSRKFLLTAN----- 744
SVLEEGVDVKQCNLVIEDELDNHEVYQSGKARRAGSRVITVEEK----- 508
SVAEGLDIRQCNVVMRIPDAKTVLAYIQSGKARKPQSDYILMVERGNVSHAFLNAR 790
AVAEGLDVPSCNVLVIRFNICRTVTQYVQSGKARRAHASTLIFLNTBELLIHENHIE- 489

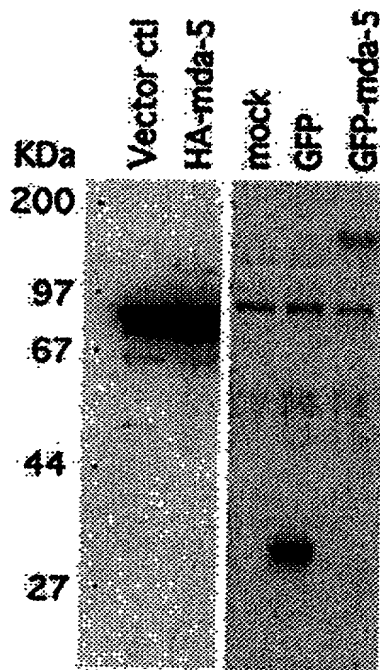
* * * * *

VID(Va) x QKXGRXGR(VI)

[illegible]

FIGURE 6 A-B

A.



B.

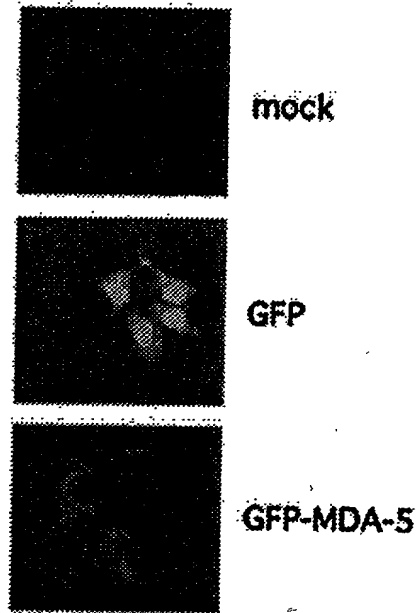
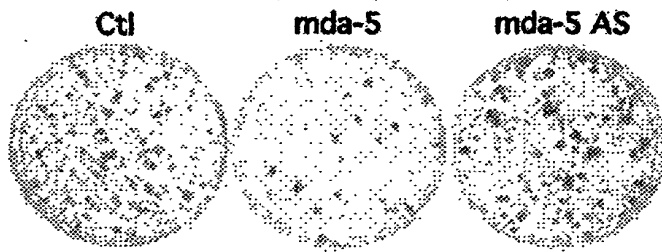


FIGURE 7 A-B

A.



B.

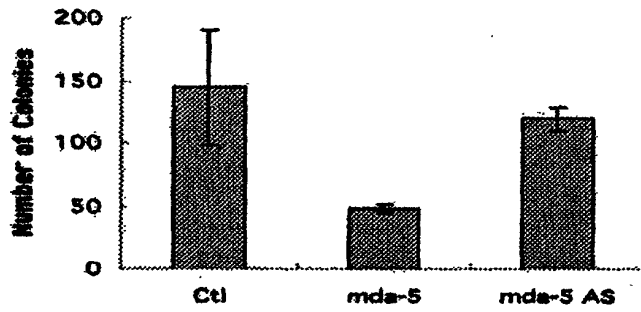


FIGURE 8 A-D

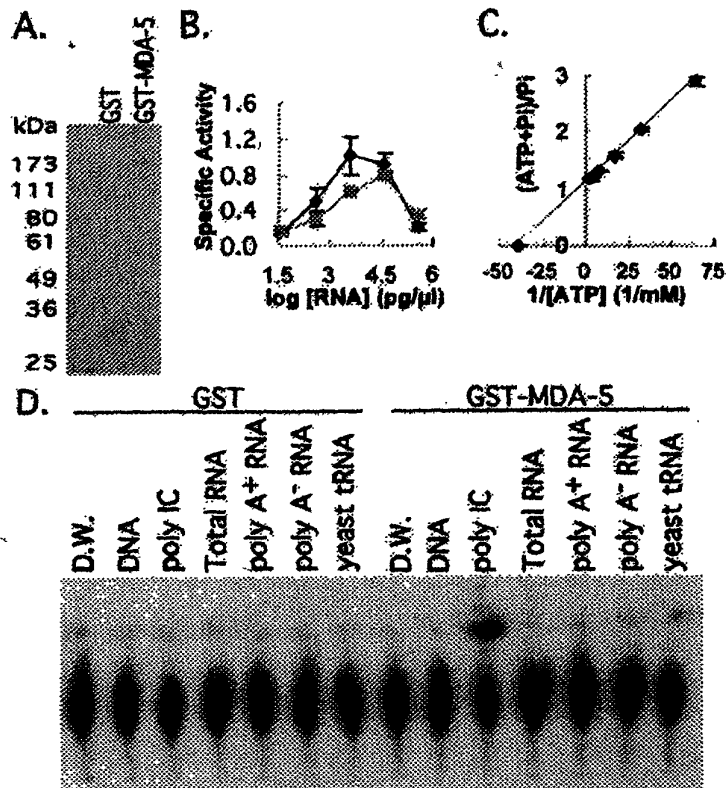


FIGURE 9

GCGCGCCGGC	CTGAGAGCCC	TGTGGACAAC	CTCGTCATTG	TCAGGCACAG
AGCGGTAGAC	CCTGCTTCTC	TAAGTGGGCA	GCGGACAGCG	GCACGCACAT
TTCACCTGTC	CCGCAGACAA	CAGCACCATC	TGCTTGGGAG	AACCCTCTCC
CTTCTCTGAG	AAAGAAAGAT	GTCGAATGGG	TATTCCACAG	ACGAGAATTT
CCGCTATCTC	ATCTCGTGCT	TCAGGGCCAG	GGTGAAAATG	TACATCCAGG
TGGAGCCTGT	GCTGGACTAC	CTGACCTTTC	TGCCTGCAGA	GGTGAAGGAG
CAGATTCAGA	GGACAGTCGC	CACCTCCGGG	AACATGCAGG	CAGTTGAACT
GCTGCTGAGC	ACCTTGAGAG	AGGGAGTCTG	GCACCTTGGT	TGGACTCGGG
AATTCGTGGA	GGCCCTCCGG	AGAACCGGCA	GCCCTCTGGC	CGCCCGCTAC
ATGAACCTTG	AGCTCACGGA	CTTGCCCTCT	CCATCGTTTG	AGAACGCTCA
TGATGAATAT	CTCCAACCTG	TGAACCTCCT	TCAGCCCACT	CTGGTGGACA
AGCTTCTAGT	TAGAGACGTC	TTGGATAAGT	GCATGGAGGA	GGAAGTGTG
ACAATTGAAG	ACAGAAACCG	GATTGCTGCT	GCAGAAAACA	ATGGAAATGA
ATCAGGTGTA	AGAGAGCTAC	TAAAAAGGAT	TGTGCAGAAA	GAAAGTGGT
TCTCTGCATT	TCTGAATGTT	CTTCGTCAAA	CAGGAAACAA	TGAACTTGTC
CAAGAGTTAA	CAGGCTCTGA	TTGCTCAGAA	AGCAATGCAG	AGATTGAGAA
TTTATCACAA	GTTGATGGTC	CTCAAGTGGA	AGAGCAACTT	CTTTCAACCA
CAGTTCAGCC	AAATCTGGAG	AAGGAGGTCT	GGGGCATGGA	GAATAACTCA
TCAGAATCAT	CTTTTGACAG	TTCTTCTGTA	GTTTCAGAA	CAGACACAAG
TTTGGCAGAA	GGAAGTGTC	GCTGCTTAGA	TGAAAGTCTT	GGACATAACA
GCAACATGGG	CAGTGATTCA	GGCACCATGG	GAAGTGATT	AGATGAAGAG
AATGTGGCAG	CAAGAGCATC	TCCGGAGCCA	GAAGTCCAGC	TCAGGCCTTA
CCAAATGGAA	GTTGCCCAGC	CAGCCTTGGA	AGGGAAGAAT	ATCATCATCT
GCCTCCCTAC	AGGGAGTGGA	AAAACCAGAG	TGGCTGTTTA	CATTGCCAAG
GATCACTTAG	ACAAGAAGAA	AAAAGCATCT	GAGCCTGGAA	AAGTTATAGT
TCTTGTCAT	AAGGTACTGC	TAGTTGAACA	GCTCTTCCGC	AAGGAGTTCC
AACCATTTTT	GAAGAAATGG	TATCGTGTTA	TTGGATTAA	TGGTGATACC
CAACTGAAAA	TATCATTTCC	AGAAGTTGTC	AAGTCCTGTG	ATATTATTAT
CAGTACAGCT	CAAATCCTTG	AAAACCTCCT	CTTAAACTTG	GAAAATGGAG
AAGATGCTGG	TGTTCAATTG	TCAGACTTTT	CCCTCATTAT	CATTGATGAA
TGTCATCACA	CCAACAAAGA	AGCAGTGTAT	AATAACATCA	TGAGGCATTA
TTTGATGCAG	AAGTTGAAAA	ACAATAGACT	CAAGAAAGAA	AACAAACCAG
TGATTCCCCT	TCCTCAGATA	CTGGGACTAA	CAGCTTCACC	TGGTGTGGA
GGGGCCACGA	AGCAAGCCAA	AGCTGAAGAA	CACATTTTAA	AAGTATGTGC
CAATCTTGAT	GCATTTACTA	TTAAAACGTG	TAAAGAAAAC	CTTGATCAAC
TGAAAAACCA	AATACAGGAG	CCATGCAAGA	AGTTTGCCAT	TGCAGATGCA
ACCAGAGAAG	ATCCATTTAA	AGAGAAACTT	CTAGAAATAA	TGACAAGGAT
TCAAACCTTAT	TGTCAAATGA	GTCCAATGTC	AGATTTTGGA	ACTCAACCCT
ATGAACAATG	GGCCATTCAA	ATGGAAAAAA	AAGCTGCAAA	AGAAGGAAAT
CGCAAAGAAC	GTGTTTGTGC	AGAACATTTG	AGGAAGTACA	ATGAGGCCCT
ACAAATTAAT	GACACAATTC	GAATGATAGA	TGCGTATACT	CATCTTGAAA
CTTTCTATAA	TGAAGAGAAA	GATAAGAAGT	TTGCAGTCAT	AGAAGATGAT
AGTGATGAGG	GTGGTGATGA	TGAGTATTGT	GATGGTGATG	AAGATGAGGA
TGATTTAAAG	AAACCTTTGA	AACTGGATGA	AACAGATAGA	TTTCTCATGA
CTTTATTTTT	TGAAAACAAT	AAAATGTTGA	AAAGGCTGGC	TGAAAACCCA

GAATATGAAA	ATGAAAAGCT	GACCAAATTA	AGAAATACCA	TAATGGAGCA
ATATACTAGG	ACTGAGGAAT	CAGCACGAGG	AATAATCTTT	ACAAAAACAC
GACAGAGTGC	ATATGCGCTT	TCCCAGTGGA	TTACTGAAAA	TGAAAAATTT
GCTGAAGTAG	GAGTCAAAGC	CCACCATCTG	ATTGGAGCTG	GACACAGCAG
TGAGTTCAAA	CCCATGACAC	AGAATGAACA	AAAAGAAGTC	ATTAGTAAAT
TTCGCACTGG	AAAAATAAAT	CTGCTTATCG	CTACCACAGT	GGCAGAAGAA
GGTCTGGATA	TTAAAGAATG	TAACATTGTT	ATCCGTTATG	GTCTCGTCAC
CAATGAAATA	GCCATGGTCC	AGGCCCGTGG	TCGAGCCAGA	GCTGATGAGA
GCACCTACGT	CCTGGTTGCT	CACAGTGGTT	CAGGAGTTAT	CGAACGTGAG
ACAGTTAATG	ATTTCCGAGA	GAAGATGATG	TATAAAGCTA	TACATTGTGT
TCAAAATATG	AAACCAGAGG	AGTATGCTCA	TAAGATTTTG	GAATTACAGA
TGCAAAGTAT	AATGGAAAAG	AAAATGAAAA	CCAAGAGAAA	TATTGCCAAG
CATTACAAGA	ATAACCCATC	ACTAATAACT	TTCCTTTGCA	AAAACCTGCAG
TGTGCTAGCC	TGTTCTGGGG	AAGATATCCA	TGTAATTGAG	AAAATGCATC
ACGTCAATAT	GACCCCAGAA	TTCAAGGAAC	TTTACATTGT	AAGAGAAAAC
AAAGCACTGC	AAAAGAAGTG	TGCCGACTAT	CAAATAAATG	GTGAAATCAT
CTGCAAATGT	GGCCAGGCTT	GGGGAACAAT	GATGGTGCAC	AAAGGCTTAG
ATTTGCCTTG	TCTCAAATAA	AGGAATTTTG	TAGTGGTTTT	CAAAAATAAT
TCAACAAAGA	AACAATACAA	AAAGTGGGTA	GAATTACCTA	TCACATTTCC
CAATCTTGAC	TATTCAGAAT	GCTGTTTATT	TAGTGATGAG	GATTAGCACT
TGATTGAAGA	TTCTTTTAAA	ATACTATCAG	TTAAACATTT	AATATGATTA
TGATTAATGT	ATTCATTATG	CTACAGAACT	GACATAAGAA	TCAATAAAAT
GATTGTTTTA	CTCTGCATTG	AACTCTTTTT	AAGAACACAA	TATATTATGC
ATTATCCATC	TTATTGTTGG	GCAGAGGTAA	GGAAAATCTA	CCAATAATTC
TCATTAGTGT	GGAGCATTAT	AGTCCTGTGG	AAAGAATGCT	GAAGTACAAA
TGAGAATCCA	AAGTACCAGT	CTCAGTTCTG	TCACTAATTT	TCAGAATAAA
ATTAGGCAAA	TCAGTTCAAA	AAAAAAAAAA	AAAAAAAAAA	AAAAAAAAAA
AAAAAAAAAA	AAAAAAAAAA	AAAAAAA		

FIGURE 10

MSNGYSTDEN	FRYLISCFRA	RVKMYIQVEP	VLDYLTFLPA	EVKEQIQRTV
ATSGNMQAVE	LLLSTLEKGV	WHLGWTREFV	EALRRTGSPL	AARYMNPFLT
DLPSPSFENA	HDEYLQLLNL	LQPTLVDKLL	VRDVLDKCME	EELLTIEDRN
RIAAAENNGN	ESGVRELLKR	IVQKENWFSA	FLNVLRQTGN	NELVQELTGS
DCSESNAEIE	NLSQVDGPQV	EEQLLSTTVQ	PNLEKEVWGM	ENNSSESSFA
DSSVVSESDT	SLAEGSVSCL	DESLGHNSNM	GSDSGTMGSD	SDEENVAARA
SPEPELQLRP	YQMEVAQPAL	EGKNIIICLP	TGSGKTRVAV	YIAKDHLDKK
KKASEPGKVI	VLVNVKLLVE	QLFRKEFQPF	LKKWYRVIGL	SGDTQLKISF
PEVVKSCDII	ISTAQILENS	LLNLENGEDA	GVQLSDFSLI	IIDECHHTNK
EAVYNNIMRH	YLMQKLKNNR	LKKENKPVIP	LPQILGLTAS	PGVGGATKQA
KAEEHILKLC	ANLDAFTIKT	VKENLDQLKN	QIQEPCKKFA	IADATREDPF
KEKLLEIMTR	IQTYCQMSPM	SDFGTQPYEQ	WAIQMEKKA	KEGNRKERV
AEHLRKYNEA	LQINDTIRMI	DAYTHLETFY	NEEKDKKFAV	IEDDSDEGGD
DEYCDGDEDE	DDLKKPLKLD	ETDRFLMTLF	FENNKMLKRL	AENPEYENEK
LTKLRNTIME	QYTRTEESAR	GIIFTKTRQS	AYALSQWITE	NEKFAEVGVK
AHHLIGAGHS	SEFKPMTQNE	QKEVISKFRT	GKINLLIATT	VAEEGLDIKE
CNIVIRYGLV	TNEIAMVQAR	GRARADESTY	VLVAHSGSGV	IERETVNDFR
EKMMYKAIHC	VQNMKPEEYA	HKILELQMQS	IMEKKMKTKR	NIAKHYKNNP
SLITFLCKNC	SVLACSGEDI	HVIEKMHHVN	MTPEFKELYI	VRENKALQKK
CADYQINGEI	ICKCGQAWGT	MMVHKGLDLP	CLKIRNFVVV	FKNNSTKKQY
KKWVELPITF	PNLDYSECCL	FSDDED•		

FIGURE 11

GCGCGCCGGC CTGAGAGCCC TGTGGACAAC CTCGTCATTG TCAGGCACAG
 AGCGGTAGAC CCTGCTTCTC TAAGTGGGCA GCGGACAGCG GCACGCACAT
 TTCACCTGTC CCGCAGACAA CAGCACCATC TGCTTGGGAG AACCTCTCC
 CTTCTCTGAG AAAGAAAGAT GTCGAATGGG TATTCCACAG ACGAGAATTT
 CCGCTATCTC ATCTCGTGCT TCAGGGCCAG GGTGAAAATG TACATCCAGG
 TGGAGCCTGT GCTGGACTAC CTGACCTTTC TGCCTGCAGA GGTGAAGGAG
 CAGATTCAGA GGACAGTCGC CACCTCCGGG AACATGCAGG CAGTTGAACT
 GCTGCTGAGC ACCTTGAGAG AGGGAGTCTG GCACCTTGGT TGGACTCGGG
 AATTCGTGGA GGCCCTCCGG AGAACCGGCA GCCCTCTGGC CGCCCGCTAC
 ATGAACCTTG AGCTCACGGA CTTGCCCTCT CCATCGTTTG AGAACGCTCA
 TGATGAATAT CTCCAACCTG TGAACCTCCT TCAGCCCCT CTGGTGGACA
 AGCTTCTAGT TAGAGACGTC TTGGATAAGT GCATGGAGGA GGAAGTGTG
 ACAATTGAAG ACAGAAACCG GATTGCTGCT GCAGAAAACA ATGGAAATGA
 ATCAGGTGTA AGAGAGCTAC TAAAAAGGAT TGTGCAGAAA GAAAGTGGT
 TCTCTGCATT TCTGAATGTT CTTGCTCAAA CAGGAAACAA TGAAGTGTG
 CAAGAGTTAA CAGGCTCTGA TTGCTCAGAA AGCAATGCAG AGATTGAGAA
 TTTATCACAA GTTGATGGTC CTCAAGTGGA AGAGCAACTT CTTTCAACCA
 CAGTTCAGCC AAATCTGGAG AAGGAGGTCT GGGGCATGGA GAATAACTCA
 TCAGAATCAT CTTTTGCAGA TTCTTCTGTA GTTTCAGAAT CAGACACAAG
 TTTGGCAGAA GGAAGTGTCA GCTGCTTAGA TGAAAGTCTT GGACATAACA
 GCAACATGGG CAGTGATTCA GGCACCATGG GAAGTGATTC AGATGAAGAG
 AATGTGGCAG CAAGAGCATC CCCGGAGCCA GAACTCCAGC TCAGGCCTTA
 CCAAATGGAA GTTGCCCAGC CAGCCTTGGA AGGGAAGAAT ATCATCATCT
 GCCTCCCTAC AGGGAGTGGA AAAACCAGAG TGGCTGTTTA CATTGCCAAG
 GATCACTTAG ACAAGAAGAA AAAAGCATCT GAGCCTGGAA AAGTTATAGT
 TCTTGTCAT AAGGTACTGC TAGTTGAACA GCTCTTCCGC AAGGAGTTCC
 AACCATTTTT GAAGAAATGG TATCGTGTTA TTGGATTAAG TGGTGATACC
 CAACTGAAAA TATCATTTCC AGAAGTTGTC AAGTCCTGTG ATATTATTAT
 CAGTACAGCT CAAATCCTTG AAAACTCCCT CTTAAACTTG GAAAATGGAG
 AAGATGCTGG TGTTCAATTG TCAGACTTTT CCCTCATTAT CATTGATGAA
 TGTCATCACA CCAACAAAGA AGCAGTGTAT AATAACATCA TGAGGCATTA
 TTTGATGCAG AAGTTGAAAA ACAATAGACT CAAGAAAGAA AACAAACCAG
 TGATTCCCCT TCCTCAGATA CTGGGACTAA CAGCTTCACC TGGTGTGGA
 GGGGCCACGA AGCAAGCCAA AGCTGAAGAA CACATTTTAA AACTATGTGC

CAATCTTGAT	GCATTTACTA	TTAAAACTGT	TAAAGAAAAC	CTTGATCAAC
TGAAAAACCA	AATACAGGAG	CCATGCAAGA	AGTTTGCCAT	TGCAGATGCA
ACCAGAGAAG	ATCCATTTAA	AGAGAAACTT	CTAGAAATAA	TGACAAGGAT
TCAAAC TTAT	TGTCAAATGA	GTCCAATGTC	AGATTTTGGA	ACTCAACCCT
ATGAACAATG	GGCCATTCAA	ATGGAAAAAA	AAGCTGCAAA	AGAAGGAAAT
CGCAAAGAAC	GTGTTTGTGC	AGAACATTTG	AGGAAGTACA	ATGAGGCCCT
ACAAATTAAT	GACACAATTC	GAATGATAGA	TGCGTATACT	CATCTTGAAA
CTTTCTATAA	TGAAGAGAAA	GATAAGAAGT	TTGCAGTCAT	AGAAGATGAT
AGTGATGAGG	GTGGTGATGA	TGAGTATTGT	GATGGTGATG	AAGATGAGGA
TGATTTAAAG	AAACCTTTGA	AACTGGATGA	AACAGATAGA	TTTCTCATGA
CTTTATTTTT	TGAAAACAAT	AAAATGTTGA	AAAGGCTGGC	TGAAAACCCA
GAATATGAAA	ATGAAAAGCT	GACCAAATTA	AGAAATACCA	TAATGGAGCA
ATATACTAGG	ACTGAGGAAT	CAGCACGAGG	AATAATCTTT	ACAAAAACAC
GACAGAGTGC	ATATGCGCTT	TCCCAGTGGA	TTACTGAAAA	TGAAAAATTT
GCTGAAGTAG	GAGTCAAAGC	CCACCATCTG	ATTGGAGCTG	GACACAGCAG
TGAGTTCAAA	CCCATGACAC	AGAATGAACA	AAAAGAAGTC	ATTAGTAAAT
TTCGCACTGG	AAAAATAAAT	CTGCTTATCG	CTACCACAGT	GGCAGAAGAA
GGTCTGGATA	TTAAAGAATG	TAACATTGTT	ATCCGTTATG	GTCTCGTCAC
CAATGAAATA	GCCATGGTCC	AGGCCCGTGG	TCGAGCCAGA	GCTGATGAGA
GCACCTACGT	CCTGGTTGCT	CACAGTGGTT	CAGGAGTTAT	CGAACATGAG
ACAGTTAATG	ATTTCCGAGA	GAAGATGATG	TATAAAGCTA	TACATTGTGT
TCAAAATATG	AAACCAGAGG	AGTATGCTCA	TAAGATTTTG	GAATTACAGA
TGCAAAGTAT	AATGGAAAAG	AAAATGAAAA	CCAAGAGAAA	TATTGCCAAG
CATTACAAGA	ATAACCCATC	ACTAATAACT	TTCTTTTGCA	AAAAC TGCAG
TGTGCTAGCC	TGTTCTGGGG	AAGATATCCA	TGTAATTGAG	AAAATGCATC
ACGTCAATAT	GACCCAGAA	TTCAAGGAAC	TTTACATTGT	AAGAGAAAAC
AAAGCACTGC	AAAAGAAGTG	TGCCGACTAT	CAAATAAATG	GTGAAATCAT
CTGCAAATGT	GGCCAGGCTT	GGGGAACAAT	GATGGTGAC	AAAGGCTTAG
ATTTGCCTTG	TCTCAAAATA	AGGAATTTTG	TAGTGGTTTT	CAAAAATAAT
TCAACAAAGA	AACAATACAA	AAAGTGGGTA	GAATTACCTA	TCACATTTCC
CAATCTTGAC	TATTCAGAAT	GCTGTTTATT	TAGTGATGAG	GATTAGCACT
TGATTGAAGA	TTCTTTTAAA	ATACTATCAG	TTAAACATTT	AATATGATTA
TGATTAATGT	ATTCATTATG	CTACAGAACT	GACATAAGAA	TCAATAAAAT
GATTGTTTTA	CTCTG			

FIGURE 12

MSNGYSTDEN	FRYLISCFRA	RVKMYIQVEP	VLDYLTFLPA	EVKEQIQRTV
ATSGNMQAVE	LLLSTLEKGV	WHLGWTREFV	EALRRTGSPL	AARYMNPFLT
DLPSPSFENA	HDEYLQLLNL	LQPTLVDKLL	VRDVLDKCME	EELLTIEDRN
RIAAAENNGN	ESGVRELLKR	IVQKENWFSA	FLNVLRQTGN	NELVQELTGS
DCSESNAEIE	NLSQVDGPQV	EEQLLSTTVQ	PNLEKEVWGM	ENNSSESSFA
DSSVVSESDT	SLAEGSVSCL	DESLGHNSNM	GSDSGTMGSD	SDEENVAARA
SPEPELQLRP	YQMEVAQPAL	EGKNIIICLP	TGSGKTRVAV	YIAKDHLDDK
KKASEPGKVI	VLVNKVLLVE	QLFRKEFQPF	LKKWYRVIGL	SGDTQLKISF
PEVVKSCDII	ISTAQILENS	LLNLENGEDA	GVQLSDFSLI	IIDECHHTNK
EAVYNNIMRH	YLMQKLKNR	LKKENKPVIP	LPQILGLTAS	PGVGGATKQA
KAEHILKLC	ANLDAFTIKT	VKENLDQLKN	QIQEPCKKFA	IADATREDPF
KEKLLEIMTR	IQTYCQMSPM	SDFGTQPYEQ	WAIQMEKKAA	KEGNNRERV
AEHLRKYNEA	LQINDTIRMI	DAYTHLETFY	NEEKDKKFAV	IEDDSDEGGD
DEYCDGDEDE	DDLKKPLKLD	ETDRFLMTLF	FENNKMLKRL	AENPEYENEK
LTKLRNTIME	QYTRTEESAR	GIIFTKTRQS	AYALSQWITE	NEKFAEVGVK
AHHLIGAGHS	SEFKPMTQNE	QKEVISKFRT	GKINLLIATT	VAEEGLDIKE
CNIVIRYGLV	TNEIAMVQAR	GRARADESTY	VLVAHSGSGV	IEHETVNDFR
EKMMYKAIHC	VQNMKPEEYA	HKILELQMQS	IMEKKMKTKR	NIAKHYKNNP
SLITFLCKNC	SVLACSGEDI	HVIEKMHHVN	MTPEFKELYI	VRENKALQKK
CADYQINGEI	ICKCGQAWGT	MMVHKGLDLP	CLKIRNFVVV	FKNNSTKKQY
KKWVELPITF	PNLDYSECCL	FSDED•		